

REMARKS/ARGUMENTSStatus of the Claims

In the Office Action mailed April 27, 2007, claims 52-59 are pending. Claims 52-59 were rejected. Claim 52 has been amended for a minor typographical error. The rejection is respectfully traversed. Reconsideration and withdrawal of the outstanding rejections are respectfully requested in view of the following remarks.

Claim Rejections — 35. U.S.C. § 102(b)

Claims 52-54 and 56 are rejected under 35. U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,376,769 to Chung, (hereinafter "Chung"). For anticipation under 35 U.S.C. § 102 the reference must teach every aspect of the claimed invention either explicitly or implicitly. Any feature not directly taught must be inherently present (M.P.E.P. 706.02).

Chung does not teach or suggest, at least, "a plurality of discrete solid metal bumps overlying said major surface of said first metal layer and extending upward through openings in said insulating film, said plurality of metal bumps having upwardly facing top faces, said top faces being flush with exposed regions of said major surface of said insulating film," as recited in claim 52 and similarly in claim 56. Chung does not disclose or teach the conductive vias being flush with insulating film. Rather, with reference to vias 312, 315 and

335, Chung teaches that they are made in like manner and with like materials to those described in relation to 110 and 210. (Col. 18, ll. 20-43). Turning to the discussion of 110 and 210, Chung states, "[t]he via holes are filled with conductive material by a building-up process by plating metal into the via holes to form conductive vias 112 that substantially fill the via holes, preferably by plating the same metal as the metal foil . . . or alternatively by depositing an electrically-conductive composition such as a conductive adhesive. . . ." (Col. 14, ll. 46-64). Then, Chung states, "conductive vias 212 may be plated-up metal or electrically-conductive adhesive. . . ." (Col. 17, ll. 45-55). Thus, Chung only teaches conductive paste or plating. Use of conductive paste does not result in "solid metal bumps," as recited in claim 52 and similarly in claim 56.

On the other hand, when vias are plated up, generally, some "spillage" of metal occurs whereby some of the metal spills out onto the adjacent surface of the dielectric structure containing the via. Thus, when plating, it is generally not possible to obtain a flush surface unless subsequent processing is employed to eliminate the spillage. Chung does not teach or disclose any such additional processing.

Since each and every element, as set forth in the claim, is not found, either expressly or inherently described as required by the M.P.E.P., Chung does not be said to anticipate the

recited claims. Accordingly, withdrawal of the rejection of claims 52-54 and 56 are respectfully requested.

Claim Rejections 35 U.S.C. § 103(a)

Claims 55, 57-59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,376,769 to Chung in view of Applicant Admitted Prior Art (APA). This rejection is respectfully traversed.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. M.P.E.P. § 2142. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to modify the references or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art must teach all the claim limitations. *Id.* In light of the following arguments, the combined references do not teach or suggest all of the claim limitations of the present invention. Applicants respectfully point to the final prong of the test which states that the prior art must teach all of the claim limitations. At the very least, the combined references do not teach or suggest all of the limitations of these claims, as stated below.

As stated previously, Chung does not teach or disclose, "a plurality of discrete solid metal bumps overlying said major surface of said first metal layer and extending upward through openings in said insulating film, said plurality of metal bumps

having upwardly facing top faces, said top faces being flush with exposed regions of said major surface of said insulating film," as recited in claims 52 or 56. The APA does not fulfill these deficiencies. Further, claims 55, and 57-59 depend from claims 52 and 56, respectively. As claims 52 and 56 are believed to be patentable, claims 55 and 57-59 are also believed to be patentable.

Accordingly, neither Chung, nor APA, alone or in combination, teach or suggest, the recited claims. Accordingly, withdrawal of the rejection of claims 55 and 57-59 is respectfully requested.

CONCLUSION

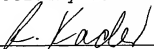
As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he/she telephone applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: September 27, 2007

Respectfully submitted,

By

  
Rabiya S. Kader

Registration No.: 48,160  
LERNER, DAVID, LITTENBERG,  
KRUMHOLZ & MENTLIK, LLP  
600 South Avenue West  
Westfield, New Jersey 07090  
(908) 654-5000  
Attorney for Applicant